

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 06-283667
 (43)Date of publication of application : 07.10.1994

(51)Int.Cl. H01L 27/04
 G11C 16/06
 H01L 27/115
 H02M 3/07

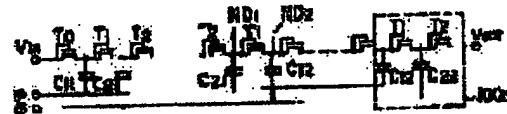
(21)Application number : 05-067704 (71)Applicant : TOSHIBA CORP
 (22)Date of filing : 26.03.1993 (72)Inventor : NODA JUNICHIRO
 Aoyanagi Yoji
 Fujimoto TAKUYA

(54) HIGH-VOLTAGE GENERATION CIRCUIT

(57)Abstract:

PURPOSE: To provide a high-voltage generation circuit which can be effectively reduced in pattern area without lowering its current supplying ability.

CONSTITUTION: The circuit is provided with MOS transistors T0, T1, and T2 which are connected in series between a boosting input voltage node and boosted output voltage node and the drains and gates of which are mutually connected and boosting capacity elements which are connected between the odd or even number nodes mutually connected to each other and first or second clock input nodes of the transistors. In this circuit in which boosting basic circuits 100a respectively containing odd number boosting capacities, even number transistors connected to the boosting capacities, even number boosting capacities in the succeeding stage, and even number transistors connected to the boosting capacities are cascade-connected, the insulating films of the boosting capacity elements C11, C21, C12, and C22 have two or more kinds of thicknesses.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision]

Searching PAJ

of rejection]

[Date of requesting appeal against examiner's
decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2003 Japan Patent Office

[0034]

[Operation] According to the first invention, by selecting and using the insulating film of the boosting capacitor connected to the boosting node in accordance with the boosting potential (a thin insulating film is used in the vicinity of an initial stage in which the boosting potential is low, and a thick insulating film is used in the vicinity of a latter state in which the boosting potential is high), the area of the insulating film can be reduced, and the pattern area is significantly reduced, compared to the prior art in which a thick oxide film for high withstand voltage is used over the entire capacitative element.